NOTES ON THE CLAYTON HERBARIUM.

S. F. BLAKE.

(Continued from p. 54.)

- 9. Convolvulus panduratus L. Sp. i. 153 (1753). The Clayton specimen (no. 641), on which the Gronovian reference is based, has the leaves pubescent beneath, glabrous calyx, stem, and petioles, and glabrous 1–3-flowered peduncles. The name Ipomoea pandurata (L.) G. F. W. Meyer, Prim. Fl. Esseq. 100 (1818), must be restricted to this form with leaves pubescent beneath. The equally common and widely distributed form with leaves glabrous beneath should bear the name I. pandurata (L.) G. F. W. Mey. var. rubescens Chois. in DC. Prod. ix. 381 (1845).
- 10. Gratiola virginiana L. Sp. i. 17 (1753).² In the Linnaean Herbarium are five sheets of this species. One sheet, from Kalm, is the G. virginiana of all our manuals. Another, with no data, is the same plant, and a third, likewise without data, is probably identical. A fourth, from India, is a very different and unidentified species, while the fifth is a mixture of Ammania and "Gratiola trifida Willd." All these specimens, however, are nomenclatorially of no consequence in this connection. The Linnaean species, as a reference to the subjoined description will show, is based primarily on the Gronovian reference, which in turn rests on Clayton 379. This plant, in the British Museum, is the short-peduncled G. sphaerocarpa Ell. Sk. i. 14 (1816), and the name G. VIRGINIANA L. must be taken up for this species.

The long-peduncled plant which has passed for G. virginiana or G. virginiana for a century and a half must now be called Gratiola Neglecta Torr. Cat. Pl. N. Y. 10, 89 (1819). The earlier name

¹ Convolvulus panduratus.

[&]quot;4. CONVOLVULUS foliis cordatis integris panduriformibusque, calycibus laevibus.
"Convolvulus foliis inferioribus cordatis, superioribus trilobis, calycibus pedunculis petiolisque glabris, caule rubescente. Gron. virg. 141.

[&]quot;Habitat in Virginiae arenosis."

² Gratiola virginiana.

[&]quot;3. GRATIOLA foliis lanceolatis obtusis subdentatis. Gron. virg. 6.*

[&]quot;Habitat in Virginia."

⁽In Addenda, Sp. ii. 1200 (1753). "P. 17. Gratiola virginiana (adde) Tsieria Manga Nari. Rheed. mal. 9. p. 165. t. 85."

Gratiola officinalis β. carolinensis Pers. Syn. i. 14 (1805), based on G. officinalis Michx. Fl. i. 6 (1803) (not L.), which is G. neglecta, is quoted by authors as a binomial and attributed to Persoon, but was first published as such by Pursh (Fl. i. 12 (1814)) in synonymy under G. officinalis, and consequently cannot be taken up for the species.

11. Rhinanthus virginicus L. Sp. ii. 603 (1753).¹ (Gerardia virginica (L.) BSP., as to syn. only.) Clayton 488, sole type of this species, now in the British Museum, is not the smooth and glaucous G. virginica of our manuals, but the puberulous species which in the Synoptical Flora (ii. pt. 1. 291 (1878)) is called Gerardia flava L., and in Britton & Brown's Illustrated Flora (ed. 2. iii. 206 (1913)) Dasystoma flava (L.) Wood. The specimen in the Linnaean Herbarium under Rhinanthus virginicus, which has been the cause of some confusion, is a South American plant received from Escallon (not before 1776, according to B. D. Jackson), which has been identified by Bentham with some doubt (in DC. Prod. x. 558 (1846)) as Lamourouxia serratifolia HBK. As this specimen did not constitute an element of the species as originally published, its exact identity is obviously of no importance in the disposition of the name Rhinanthus virginicus.

Attention must be called here to the century-old but erroneous reference, originating doubtless in some confusion of specimens which cannot now be traced, of Rhinanthus virginicus to the synonymy of the glaucous plant known to the older authors as Gerardia quercifolia Pursh, Fl. ii. 423. t. 19 (1814). The latter name well exemplifies a class of names for which I have recently proposed the designation nomina legitimata (Contr. Gray Herb. N. S. no. lii. 51 (1917)), — it having been based on a description belonging to one species and a synonym belonging to another, and afterward restricted by authors to the plant described to the exclusion of the synonym. It seems now impossible to discover the error by which Pursh and Bentham (in DC. Prod. x. 520 (1846)), and subsequently Gray (Syn. Fl. ii. pt. 1. 291 (1878)) and other authors, including Pennell (Bull. Torr. Club xl. 409 (1913)), were led to refer the Clayton specimen, and consequently Rhinanthus virginicus L., to the glaucous species, but in any case the fact remains that Clayton 488, basis of the Gronovian name, is not that species but is the puberulous plant almost universally called Gerardia flava or Dasystoma flava.

¹ Rhinanthus virginicus.

[&]quot;5. RHINANTHUS corollis fauce patente, foliis sinuato dentatis. Gron. virg. 168.† "Habitat in Virginia."

The Linnaean Gerardia flava (Sp. ii. 610 (1753)) was a complex of the puberulous species, G. flava of authors (as to citations), and the glaucous species, G. virginica of authors (as to specimen in Linnaean Herbarium). It has been restricted to the puberulous species by practically all authors except Pennell, who has recently referred it to the glaucous plant figured as G. quercifolia by Pursh. Under these circumstances it seems advisable to continue the practice of practically all writers and retain the name in its established application for the puberulous species, designating as type the Clayton specimen (no. 9), cited by Gronovius (p. 74) and now in the British Museum, which I have examined. The two names, Gerardia flava and Rhinanthus virginicus, of the same date (1753), were first combined by Dr. Pennell (Bull. Torr. Club xl. 409 (1913)), who adopted the name virginicus (Aureolaria virginica (L.) Pennell). Although this name was unfortunately applied by Dr. Pennell to the glaucous species, the G. virginica of the manuals, it must now be used, under another generic name, for the puberulous plant generally called G. flava.

The oldest name applying to the glaucous species generally known as G. virginica, and the only appropriate one it has ever received, is Gerardia glauca Eddy, Med. Repos. N. Y. hex. 2. v. 126 (1808). As this work is decidedly rare, it may be well to quote Eddy's description, which occurs in his "Plantae Plandomenses, or a Catalogue of the Plants growing spontaneously in the Neighborhood of Plandome, the Country Residence of Samuel L. Mitchill. By Caspar Wistar Eddy, Student of Medicine," which is dated from "New-York, August 28th, 1807." It runs as follows: "Gerardia glauca," (species nova mihi.) Descr. G. foliis inferne lyrato-runcinatis serratis, medio pinnatifidoerratis [sic], et superne lanceolatis serratis; caule glauco, paniculato; soribus pedunculatis." (Footnote.) "*I have also found this plant about two miles and a half from New-York, but first observed the difference between it and the G. flava of Linnaeus in the summer of 1805."

In his preliminary paper on the genera of the Agalineae (Gerardieae of authors), Dr. F. W. Pennell (Bull. Torr. Club xl. 119-130 (1913))

¹ Gerardia flava.

[&]quot;3. GERARDIA foliis lanceolatis pinnato-dentatis, caule simplicissimo.

[&]quot;Anonymos floribus flavis speciosis digitali aequalibus. Gron. virg. 74.

[&]quot;Digitalis lutea elatior, jaceae nigrae foliis. Banist. virg. 1926. Pluk. mant. 64. t. 368.

[&]quot;Habitat in Virginia, Canada.

[&]quot;Caulis pedalis s. altior. Folia opposita, lanceolata, subpetiolata (Lycopi aut jaceae), basi incisa pinnatim sinubus patulis. Spica terminalis, laxa, ex Floribus oppositis, magnis, flavis. Antherae in duas spinas deorsum tendentes. Stamen quintum deest."

has proposed to restrict the name Gerardia L. to the tropical American genus of Acanthaceae usually known as Stenandrium Nees. Dr. Pennell's argument may be briefly summarized as follows, reference being made to the original paper by those requiring further information. The name Gerardia was adopted by Linnaeus from Plumier, who had used it for an Acanthaceous plant from the West Indies which by various authors has been identified with apparently good reason as Stenandrium rupestre (Sw.) Nees. With this plant (G. tuberosa L.), not autoptically known to him, Linnaeus associated four other species - G. purpurea, G. flava, G. pedicularia, and G. glutinosa - all four known to Linnaeus by personal examination, as is evidenced by his comparatively ample descriptions. The Linnaean diagnosis in the fifth edition of the Genera Plantarum refers entirely to G. tuberosa. This species was furthermore cited by J. E. Smith in 1810 (Rees's Ency. xvi. no. 1) as the species to which the name must be restricted in case the Linnaean genus should be divided: "Whatever might be the result of such examination [of the fruit], this plant [G. tuberosa L.] must be the true, though it were the only Gerardia, and the rest in that case must have a new generic appellation and character."

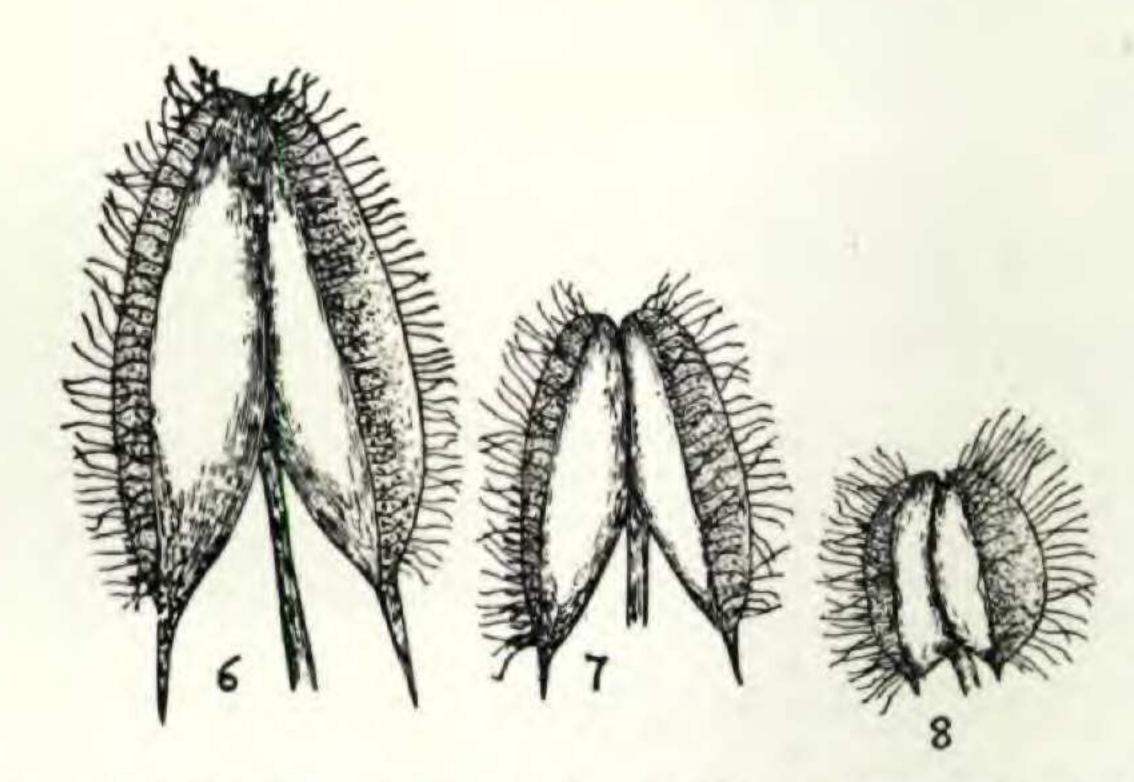
With this treatment by Dr. Pennell, which has been followed by Dr. Britton in the second edition of the Illustrated Flora, the writer finds himself in complete agreement, although he can not subscribe to the recognition as independent genera of the long recognized sections of Gerardia which are generally known as Dasystoma, Otophylla, and Eugerardia. The name Dasistoma Raf. (1819), which in the form Dasystoma has generally been applied to the G. virginica series, is based, according to Pennell, on Seymeria macrophylla Nutt. I have not present means of access to the rare work in which Rafinesque's genus is described, but the synopsis of his characters given by Pennell fully substantiates the latter's reference of the generic name to Seymeria macrophylla (which by Pennell is retained as generically distinct from Seymeria (Afzelia)). The yellow-flowered species of the G. virginica group were named Aureolaria by Rafinesque in 1837, Panc-

¹ In my recent transfer (Contr. Gray Herb. N. S. no. 52, 100–101 (1917)) of the Mexican and West Indian species of Stenandrium to Gerardia, two species of the West Indies were accidentally omitted. These are: Gerardia droseroides (Nees) comb. nov. (Stenandrium droseroides Nees in DC. Prod. xi. 284 (1847)); and Gerardia scabrosa (Sw.) Raf. Fl. Tell. iv. 67 ("1836" = 1837) (Ruellia? scabrosa Sw. Fl. Ind. Occ. ii. 1074 (1800); Stenandrium scabrosum (Sw.) Nees in DC. Prod. xi. 284 (1847); Lindau in Urb. Symb. Ant, ii. 208 (1900); Stenandrium punctatum Griseb. Cat. Pl. Cub. 196 (1866)).

tenis was proposed for G. pedicularia and two very doubtfully distinct species, and Agalinis ("remarkable flax") for the purple-flowered species of the G. purpurea alliance. The distinctive characters of Aureolaria and Agalinis, the two genera retained by Pennell for the Coastal Plain members of the genus "Gerardia," are thus stated by him (l. c. 404–5).

"Corolla yellow. Anther-sacs parallel, awned at base. Capsule acute to acuminate. Seeds wingless or winged...3. Aureolaria. "Corolla pink or purple. Anther-sacs more or less divergent, obtuse to mucronate-awned at base. Capsule rounded at apex. Seeds wingless...................4. Agalinis."

These characters, it must be confessed, are much more impressive as thus stated than as shown by the specimens themselves. While



Figs. 6-8.— Fig. 6. "Gerardia" pedicularia L. ("Aureolaria".— Rumford, Maine, 1889. Parlin). Fig. 7. "G." peduncularis Benth. ("Agalinis".— Chiapas, Ghiesbreght 685). Fig. 8, "G." tenuifolia Vahl ("Agalinis".— Orange, Connecticut, 12 Sept., 1900, Bissell).— All × 5.

the species of the G. virginica group have obviously awned anthers, with awns $\frac{1}{4}-\frac{1}{2}$ the length of the sacs, there is a very obvious mucro at the base of the cells in many of the purple-flowered species (Agalinis), and in G. peduncularis Benth., a purple-flowered Mexican species with the habit of G. purpurea, which has been referred by Dr. Pennell in mss. notes in the Gray Herbarium to Agalinis, the short awns or long mucros, as they may indifferently be called, are precisely intermediate between typical ones of the two groups, and almost identical in relative length with those of G. grandiflora, a close ally of G. virginica. The unsatisfactory character of the anther-appendages as a means of distinction between the two groups is indicated by figures 6–8, which, while perhaps not strictly accurate in respect to the degree of divergence of the anther-cells, since they are drawn from dried specimens

which have been boiled out, are at any rate so in respect to the awns. Fig. 6 represents a species referred to Aureolaria, figs. 7–8 two species referred to Agalinis by Dr. Pennell. It does not seem to the writer that the differences in color of flowers and shape of capsule are properly to be taken as of generic value, although they do furnish good group characters. The best course seem to be the retention of the genus as circumscribed by the matured judgments of Gray and of Bentham, adopting for it the name Agalinis, to which (in its restricted sense) belong the majority of the species. The following new combinations are required for the species in the Gray's Manual range.

AGALINIS Raf. New Fl. ii. 61 ("1836" = 1837).— Aureolaria Raf. l. c. 58. Panctenis Raf. l. c. 60. Gerardia auth., not L. restr.

Subg. Panctenis (Raf.).—Gerardia sect. Pedicularioides Benth. Comp. Bot. Mag. i. 204, 205 (1836). Aureolaria and Panctenis Raf. ll. cc. (1837). Gerardia § Dasystoma Gray, Man. ed. 1. 306 (1848), not Dasistoma Raf., the name-bringing syn. Aureolaria subg. Panctenis (Raf.) Pennell, Bull. Torr. Club xl. 408 (1913).

Subg. Otophylla (Benth.)— Gerardia sect. Otophylla Benth. ll. cc. (1836).

Subg. **Euagalinis**, nom. nov.— Gerardia sect. Eugerardia Benth. l. c. 204, 206 (1836).— Type species A. purpurea (L.) Pennell.— The elevation of these groups to subgenera, which seems desirable in view of their characters, makes it possible to avoid the use of Bentham's name, which has now become unappropriate.

AGALINIS pedicularia (L.) comb. nov.— Gerardia pedicularia L. Sp. ii. 611 (1753).

Agalinis pedicularia (L.) Blake var. ambigens (Fernald) comb. nov.— Gerardia pedicularia var. ambigens Fernald, Rhodora x. 86 (1908).

Agalinis pedicularia (L.) Blake var. pectinata (Nutt.) comb. nov.— Gerardia pedicularia var. pectinata Nutt. Gen. ii. 48 (1818).

AGALINIS PEDICULARIA (L.) Blake var. caesariensis (Pennell) comb. nov.— Aureolaria pedicularia caesariensis Pennell, Bull. Torr. Club xl. 413 (1913).

AGALINIS grandiflora (Benth.) comb. nov.— Gerardia grandiflora Benth. Comp. Bot. Mag. i. 206 (1836).

AGALINIS GRANDIFLORA (Benth.) Blake var. serrata (Benth.) comb.

¹ According to a letter from Mr. B. D. Jackson, at the Gray Herbarium, pages 193-224 of the first volume of the "Companion to the Botanical Magazine," including the whole of Bentham's "Synopsis of the Gerardieae," were issued in Feb. 1836.

nov.— Dasystoma Drummondii var. serrata Benth. in DC. Prod. x. 521 (1846). G. serrata Torr. ex Benth. l. c. as syn. G. grandifolia var. serrata (Torr.) Rob. Rhodora x. 35 (1908).

AGALINIS virginica (L.) comb. nov.— Rhinanthus virginicus L. Sp. ii. 603 (1753). Gerardia flava L. 610.

AGALINIS glauca (Eddy) comb. nov.— Gerardia glauca Eddy, Med. Repos. N. Y. hex. 2. v. 126 (1808). Gerardia virginica BSP. Prel. Cat. 40 (1889), not Rhinanthus virginicus L.; Robinson & Fernald in Gray, Man. ed. 7. 730 (1908).

Agalinis laevigata (Raf.) comb. nov.— Gerardia laevigata Raf. Ann. Nat. 13 (1820).

AGALINIS auriculata (Michx.) comb. nov.— Gerardia auriculata Michx. Fl. ii. 20 (1803).

AGALINIS densifiora (Benth.) comb. nov.—Gerardia densifiora Benth. Comp. Bot. Mag. i. 206 (1836).

Agalinis tenuifolia (Vahl) Raf. var. **macrophylla** (Benth.) comb. nov.— Gerardia tenuifolia var. macrophylla Benth. Comp. Bot. Mag. i. 209 (1836).

12. Gnaphalium obtusifolium L. Sp. ii. 851 (1753). In the Synoptical Flora (i. pt. 2. 234 (1884)) this name was synonymized by Dr. Gray with G. polycephalum Michx., but rejected because "a false name taken from the char. and figure of the doubtful plant of Dill. Elth.", and the sixth and seventh editions of Gray's Manual have followed this usage. However, this view is not sanctioned by modern practices of nomenclature. Clayton's no. 203, at the British Museum, basis of the Gronovian reference, is G. polycephalum, and the figure and description of Morison refer likewise to this species. The figure of Dillenius, as well as his description, seems to the writer to agree well with the plant later described as G. Helleri Britton in breadth of leaf, pubescence, and other features. This Dillenian reference, based on a plant probably altered by cultivation, has been a source of doubt from early

¹ Gnaphalium obtusifolium.

[&]quot;8. GNAPHALIUM foliis lanceolatis, caule tomentoso, ramoso, floribus terminalibus glomeratis conicis.

[&]quot;Gnaphalium foliis lanceolatis, caule tomentoso, corymbis supra decompositis, floribus sessilibus confertis. Gron. virg. 95.

[&]quot;Elichrysum obtusifolium, capitulis argenteis conglobatis. Dill. elt. 130. t. 108: f. 131.

[&]quot;Helichrysum Chrysocoma Gnaphalioides virginiana annua, foliis obtusioribus, capitulis argenteis conglobatis. Moris. hist. 3. p. 88. s. 7. t. 10. f. 19.

[&]quot;Habitat in Virginia, Pensylvania.

[&]quot;Caulis tomentosus, pilosus, ramosus, erectus. Folia lanceolata, recurvata, nudiuscula. Flores terminales, conglobati, inaequales, subsessiles. Calyces conici, albi, acuti. Corollae flavae."

times. Michaux's name G. polycephalum was based on G. obtusifolium after the exclusion of this same reference ("Obs. G. obtusifolium, Linn., omisso synonymo Dillenii, qui plantam cultura mutatam tradidit"). This doubtful element of the Linnaean species, however, can not be considered of sufficient importance to outweigh the fact that all the other constituents are identical with G. polycephalum, even though the Linnaean name was taken from Dillenius's specific name ("Elichrysum obtusifolium, capitulis argenteis conglobatis"). Such a borrowing of names, often practiced by Linnaeus, cannot logically be regarded as determining the types of the Linnaean species in the same way as in the case of "name-bringing synonyms" in modern binomialism.

The plant described by Britton as $Gnaphalium\ Helleri$ (Bull. Torr. Club xx. 280 (1893)) seems better treated as a variety, as it was by Torrey & Gray $(G.\ polycephalum\ \beta.)$ and by Fernald $(G.\ polycephalum\ var.\ Helleri$ (Britton) Fernald, Rhodora x. 94 (1908)). If the wool of a specimen of $G.\ obtusifolium$ be removed, stipitate glands precisely similar in shape and position to those of the variety are found. It seems fairly certain, then, that the latter represents only a form of the type which lacks the tomentum. It should be called GNAPHALIUM OBTUSIFOLIUM L. var. Helleri (Britton).

The changes in nomenclature here proposed may for convenience be summarized in systematic order as follows. The numbers in parentheses are those under which the species will be found in the preceding discussion.

- (1) Eleocharis capitata (L.) R. Br.— E. tenuis (Willd.) Schultes.
- (1) E. CARIBAEA (Rottb.) Blake E. capitata of auth.
- (1) E. CARIBAEA (Rottb.) Blake var. dispar (E. J. Hill) Blake E. capitata var. dispar (E. J. Hill) Fernald.
 - (2) FIMBRISTYLIS AUTUMNALIS (L.) R. & S.— F. Frankii Steud.
- (2) F. AUTUMNALIS (L.) R. & S. forma brachyactis (Fernald) Blake F. Frankii Steud. var. brachyactis Fernald.
 - (2) F. MUCRONULATA (Michx.) Blake F. autumnalis of auth.
- (3) Rynchospora capitellata (Michx.) Vahl R. glomerata of auth. For varieties, see discussion.
- (3) R. GLOMERATA (L.) Vahl R. glomerata var. paniculata (Gray) Chapm.
 - (4) Dioscorea Villosa L.— D. paniculata Michx.
- (4) D. VILLOSA L. var. GLABRIFOLIA (Bartlett) Blake D. paniculata Michx. var. glabrifolia Bartlett.

- (5) HELIANTHEMUM PROPINQUUM Bicknell H. majus of auth.
- (6) OENOTHERA FRUTICOSA L.— O. linearis Michx.
- (6) O. FRUTICOSA L. var. Eamesii (Rob.) Blake O. linearis Michx. var. Eamesii Rob.
 - (6) O. HYBRIDA Michx. O. fruticosa var. hirsuta Nutt.
- (6) O. HYBRIDA Michx. var. Ambigua (Nutt.) Blake O. fruticosa of auth.
- (7) Thaspium trifoliatum (L.) Gray T. aureum var. atropurpureum (Desr.) Coult. & Rose.
- (7) T. TRIFOLIATUM (L.) Gray var. Flavum Blake T. aureum of auth.
 - (10) GRATIOLA NEGLECTA Torr.— G. virginiana of auth.
 - (10) G. VIRGINIANA L.— G. sphaerocarpa Ell.
 - (11) AGALINIS Raf. Gerardia of Gray's Man. ed. 7.
 - (11) A. subg. Euagalinis Blake Gerardia sect. Eugerardia Benth.
- (11) A. subg. Otophylla (Benth.) Blake Gerardia sect. Otophylla Benth.
- (11) A. subg. Panctenis (Raf.) Blake Gerardia sect. Dasystoma Gray.
 - (11) A. Auriculata (Michx.) Blake Gerardia auriculata Michx.
 - (11) A. DENSIFLORA (Benth.) Blake Gerardia densiflora Benth.
 - (11) A. GLAUCA (Eddy) Blake Gerardia virginica of auth.
 - (11) A. GRANDIFLORA (Benth.) Blake Gerardia grandiflora Benth.
- (11) A. GRANDIFLORA (Benth.) Blake var. Serrata (Benth.) Blake— Gerardia grandiflora Benth. var. serrata (Torr.) Rob.
 - (11) A. LAEVIGATA (Raf.) Blake Gerardia laevigata Raf.
 - (11) A. PEDICULARIA (L.) Blake Gerardia pedicularia L.
- (11) A. Pedicularia (L.) Blake var. ambigens (Fernald) Blake— Gerardia pedicularia L. var. ambigens Fernald.
- (11) A. Pedicularia (L.) Blake var. caesariensis (Pennell) Blake— Aureolaria pedicularia caesariensis Pennell.
- (11) A. Pedicularia (L.) Blake var. Pectinata (Nutt.) Blake Gerardia pedicularia L. var. pectinata Nutt.
- (11) A. TENUIFOLIA (Vahl.) Raf. var. Macrophylla (Benth.) Blake Gerardia tenuifolia Vahl var. macrophylla Benth.
 - (11) A. VIRGINICA (L.) Blake Gerardia flava of auth.
 - (12) GNAPHALIUM OBTUSIFOLIUM L.— G. polycephalum Michx.
- (12) G. OBTUSIFOLIUM L. var. Helleri (Britton) Blake G. polycephalum Michx. var. Helleri (Britton) Fernald.

GRAY HERBARIUM.